

The economic burden of occupational injuries and diseases in the countries considered are substantial, despite efforts to reduce adverse workplace exposures. Our case costs and total economic burden estimates provide a basis for undertaking economic evaluations of prevention efforts and can serve as a template for monitoring and evaluation at the country level. We advance the methods on several fronts.

Solvents

02D.1 A FOLLOW-UP STUDY OF OCCUPATIONAL STYRENE EXPOSURE AND RISK OF SYSTEMIC SCLEROSIS, RHEUMATOID ARTHRITIS, AND OTHER SYSTEMIC AUTOIMMUNE RHEUMATOLOGICAL DISEASES

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Background Increased risk of systemic sclerosis, systemic lupus erythematosus, rheumatoid arthritis, primary systemic vasculitis, and systemic Sjogren's syndrome has been suggested following occupational solvent exposure. The evidence for specific solvents is, however, limited and little is known about exposure and risk patterns.

Aim Our aim is to examine the exposure response relation for systemic sclerosis, rheumatoid arthritis, systemic lupus erythematosus, primary systemic vasculitis, and systemic Sjogren's syndrome following occupational styrene exposure.

Methods We followed 72 467 styrene exposed workers of the Danish reinforced plastics industry from 1977–2012. We modelled styrene exposure from employment history, survey data and historical styrene exposure measurements. We identified cases in a national patient register, and investigated gender specific exposure response relations by cumulative styrene exposure for different exposure time windows adjusting for age, decade, educational level and a proxy for tobacco smoking.

Results During 1,553,577 person-years, we identified 223 women and 453 men diagnosed with a systemic autoimmune rheumatological disease, of which three out of four were rheumatoid arthritis. When adjusting for potential confounders and comparing the highest with the lowest styrene exposure tertile, we observed a statistically non-significantly increased risk of systemic sclerosis among men (IRR=1.79; 95% CI 0.48–6.87) and women (IRR=2.58; 95% CI 0.51–12.94), based on 20 and 9 cases respectively. However, for women with systemic sclerosis, we saw a significantly increasing trend of 1.19 (1.01–1.40) pr. 100 mg/m³-years. Increased risks were also suggested for primary systemic vasculitis (IRR=2.32; 95% CI 0.63–8.52) and rheumatoid arthritis (IRR=1.26; 95% CI 0.95–1.67) among men. Analyses of exposure time windows suggest a latency period for rheumatoid arthritis of about 15 years.

Conclusion This study might indicate that styrene exposure is associated with the occurrence of systemic sclerosis among men and women, and primary systemic vasculitis and rheumatoid arthritis among men.

02D.2 OCCUPATIONAL EXPOSURE TO OXYGENATED, PETROLEUM-BASED AND CHLORINATED SOLVENTS OF WOMEN IN CHILDBEARING AGE IN FRANCE IN 2013

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Objective Occupational exposure to chemical agents including solvents is sparsely described among women although they constitute a vulnerable population at certain points in life and particularly during the procreative period. The aim of this study is to document the occupational exposure to oxygenated, petroleum-based and chlorinated solvents in women of childbearing age (WCA).

Methods We linked 17 job-exposure matrices describing exposure to oxygenated, petroleum-based and chlorinated solvents from the MATGÉNÉ programme to the 2013 French census. The occupational exposure prevalence was estimated in women aged from 15 to 44 years. The occupational exposure prevalence was described by 5 year age group, occupation and worker status (salaried or self-employed).

Results The most frequently used solvents in French workplace in 2013 by WCA are oxygenated solvents (15% of WCA at work, n=1,112,000), then petroleum-based solvents (1%, n=73,000) and chlorinated solvents (0.1%, n=9,000). The younger WCA (15–29 years) are more exposed to oxygenated solvents than their elders (19.9% vs 14.9%). On the contrary, the elderly (35–44 years) are more exposed to petroleum-based and chlorinated solvents. Three quarters of the WCA exposed to at least one oxygenated solvent are civil and public servants (41%), health and social workers (21%) or direct personal services staff (19%). Half of WCA exposed to at least one petroleum-based solvent are drivers (20%) and skilled workers of industrial and artisanal fields (13% respectively). For WCA exposed to at least one chlorinated solvent, nearly half worked as non-skilled workers of industrial and artisanal type (17% respectively) and health and social workers (15%).

Conclusions This study is the first describing occupational exposure to three major solvents' families for the entire working WCA in France regardless of working status or occupation. These information will help in the surveillance of this occupational risk and to prioritize prevention actions.

02D.3 PROTECTIVE EFFECTS OF PPE USE AND GOOD WORKPLACE HYGIENE PRACTICES AGAINST SYMPTOMS OF NEUROTOXICITY IN COLLISION REPAIR WORKERS

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Objectives We have recently shown that solvent-exposed collision repair workers (spray painters and panel beaters) in New Zealand are at an increased risk of both self-reported and objectively assessed neurobehavioural effects, indicating a need for more effective exposure controls. This study assessed the